

Notice of Allowability

Application No.

10/713,360

Examiner

Igwue U. Anya

Applicant(s)

SHEA, KEVIN R.

Art Unit

2891

PM

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address--

All claims being allowable, PROSECUTION ON THE MERITS IS (OR REMAINS) CLOSED in this application. If not included herewith (or previously mailed), a Notice of Allowance (PTOL-85) or other appropriate communication will be mailed in due course. **THIS NOTICE OF ALLOWABILITY IS NOT A GRANT OF PATENT RIGHTS.** This application is subject to withdrawal from issue at the initiative of the Office or upon petition by the applicant. See 37 CFR 1.313 and MPEP 1308.

1. ☒ This communication is responsive to Paper filed 8 February 2005.
2. ☒ The allowed claim(s) is/are 1-16, 19-32 and 34-53.
3. ☒ The drawings filed on 14 November 2003 are accepted by the Examiner.
4. ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
a) ☐ All b) ☐ Some* c) ☐ None of the:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this national stage application from the International Bureau (PCT Rule 17.2(a)).
* Certified copies not received: _____.

Applicant has THREE MONTHS FROM THE "MAILING DATE" of this communication to file a reply complying with the requirements noted below. Failure to timely comply will result in ABANDONMENT of this application.
THIS THREE-MONTH PERIOD IS NOT EXTENDABLE.

5. ☐ A SUBSTITUTE OATH OR DECLARATION must be submitted. Note the attached EXAMINER'S AMENDMENT or NOTICE OF INFORMAL PATENT APPLICATION (PTO-152) which gives reason(s) why the oath or declaration is deficient.
6. ☐ CORRECTED DRAWINGS (as "replacement sheets") must be submitted.
(a) ☐ Including changes required by the Notice of Draftsperson's Patent Drawing Review (PTO-948) attached
1) ☐ hereto or 2) ☐ to Paper No./Mail Date _____.
(b) ☐ Including changes required by the attached Examiner's Amendment / Comment or in the Office action of Paper No./Mail Date _____.
Identifying indicia such as the application number (see 37 CFR 1.84(c)) should be written on the drawings in the front (not the back) of each sheet. Replacement sheet(s) should be labeled as such in the header according to 37 CFR 1.121(d).
7. ☐ DEPOSIT OF and/or INFORMATION about the deposit of BIOLOGICAL MATERIAL must be submitted. Note the attached Examiner's comment regarding REQUIREMENT FOR THE DEPOSIT OF BIOLOGICAL MATERIAL.

Attachment(s)

1. ☐ Notice of References Cited (PTO-892)
2. ☐ Notice of Draftperson's Patent Drawing Review (PTO-948)
3. ☐ Information Disclosure Statements (PTO-1449 or PTO/SB/08),
Paper No./Mail Date _____
4. ☐ Examiner's Comment Regarding Requirement for Deposit
of Biological Material
5. ☐ Notice of Informal Patent Application (PTO-152)
6. ☐ Interview Summary (PTO-413),
Paper No./Mail Date _____
7. ☒ Examiner's Amendment/Comment
8. ☒ Examiner's Statement of Reasons for Allowance
9. ☐ Other _____

EXAMINER'S AMENDMENT

1. An examiner's amendment to the record appears below. Should the changes and/or additions be unacceptable to applicant, an amendment may be filed as provided by 37 CFR 1.312. To ensure consideration of such an amendment, it **MUST** be submitted no later than the payment of the issue fee.

The application has been amended as follows:

in claim 24 line 3 delete "H₂O₂", replace with --NH₄OH--;

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in claim 34 line 12 delete "H₂O₂", replace with --NH₄OH--;

in claim 35 line 3 delete "H₂O₂", replace with --NH₄OH--; and

in claim 45 line 3 delete "H₂O₂", replace with --NH₄OH--.

Allowable Subject Matter

2. The following is an examiner's statement of reasons for allowance. Applicant's claims 1 – 16, 19 – 32, and 34 – 53 are allowable, because prior art does not teach inter alia:

(**claims 1, 40, 49**) preferentially recessing metal nitride and or HSG silicon relative to a photoresist to form a DRAM capacitor;

(**claim 19**) selectively recessing titanium nitride to a depth of 100 – 500 angstroms below a surface relative to a photoresist;

(**claim 22**) selectively recessing titanium nitride at a temperature 20 – 70 degrees C relative to a photoresist;

(**claim 34**) preferentially removing a metal nitride at a temperature of 20 – 55 degrees C using APM comprising 0.33 – 4.8 %wt H₂O₂ and 0.18 – 3.9 %wt NH₄OH; and

(**claim 36**) preferentially removing a metal nitride at a temperature of 20 – 55 degrees C using HPM comprising 0.33 – 4.8 %wt H₂O₂ and 0.18 – 4.9 %wt HCl.

3. Any comments considered necessary by applicant must be submitted no later than the payment of the issue fee and, to avoid processing delays, should preferably accompany the issue fee. Such submissions should be clearly labeled "Comments on Statement of Reasons for Allowance."

Remarks

4. The examiner has reviewed prior art in light of applicant's comments and amendment.

Contact Information

5. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Igwe U. Anya whose telephone number is (571) 272-1887. The examiner can normally be reached on M - F 8:30am - 5:00pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, William B. Baumeister can be reached on (571) 272-1722. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Igwe U. Anya
Examiner
Art Unit 2891

IA

April 20, 2005



**B. WILLIAM BAUMEISTER
SUPERVISORY PATENT EXAMINER**